

## REMARKS

### Confirming Response to Restriction Requirement

In a telephone interview, the examiner required election of one of two groups of claims as follows:

- I. Claims 1-26, drawn to a method of bonding
- II. Claims 27-34, drawn to an adhesive

Applicants confirm that Group I, claims 1-26, have been elected without traverse. Claims 27-34 are therefore withdrawn.

### Rejection of Claims 19-25 under 35 U.S.C. §102(b) or §103(a)

The examiner has rejected claims 19-25 as either anticipated by or obvious over Hacker et al., US Patent Application Publication 2002/0002265 ("Hacker"). The examiner states that Hacker discloses a resist adhesive useful in the microelectronics field comprising novolac resin and a solvent. Further, the examiner states that the resist adhesive undergoes heating to remove the solvent and to bond the resist adhesive to the substrate.

Applicants respectfully disagree that Hacker either anticipates or makes the present claims obvious. The composition of Hacker differs from that of the present claims by requiring a surfactant (*see* Abstract, as well as numerous other cites in the specification) and only optionally requiring a solvent (¶0018, line 1). The surfactant is presumably present to make the resist adhesive spread better across the substrate, making a planarized film. Formation of a film is significantly different than bonding a ceramic to a manufacturing tool. A film as described in Hacker is a thin, even layer that covers another surface and that by necessity must not adhere to a second surface. In fact, the film may not even adhere to the first surface. Adhesiveness is not a factor that plays a part in the Hacker composition.

The resist adhesive matrices of the present claims do not require a surfactant, always require a solvent, and are used to bond a ceramic material to a manufacturing tool. An important aspect of the methods of the present claims is to create adherence between two different substances. This is quite different from forming a film on top of one substance. There is no need to spread the resist adhesive matrix across a substance such as a disk. There is, however, always a requirement for a solvent, as the solvent creates greater adhesion in the compositions of

the invention, and allows the adhesive to dry quickly. Thus, Hacker does not anticipate claims 19-25, and applicants request that this rejection be withdrawn.

Hacker does not teach or suggest the use of a resist adhesive to join two items, as Hacker relates to a different use of a resist adhesive resin. The Hacker resist adhesives contain different components in order to optimize film forming. As such, Hacker does not make the present claims obvious.

Additionally, because the compositions of the present invention are used as double adhesives rather than as films, other resist adhesive resins can be used to make the compositions. For example, as found in claim 22 (and claim 6), the resist adhesive resins can be selected from novolac resins, poly(ethylene-co-vinylalcohol), poly(2-hydroxyethylmethacrylate), cellulose polymers, and combinations thereof.

The examiner specifically applies Hacker in rejecting claims 19, 21, 24 and 25 as obvious, stating that one of skill in the art at the time the invention was made would have known how to experimentally determine which solvent taught by Hacker to use in the present invention. Applicants respectfully point out that without the teachings of the present application, one of ordinary skill in the art would not have looked to Hacker for a selection of solvents to use with the resist adhesive resin. The examiner is using hindsight to construct the present invention, a procedure that is improper. As the Federal Circuit stated in *Princeton Biochemicals Inc. v. Beckman Coulter Inc.*,

Inventions typically are new combinations of existing principles or features. *Envil. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that “virtually all [inventions] are combinations of old elements”). The “as a whole” instruction in title 35 prevents evaluation of the invention part by part. *Ruiz v. A.B. Chance Co.*, 357 F.3d 1270, 1275 (Fed. Cir. 2004). Without this important requirement, an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. *Id.* This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result - often the essence of invention. *Id.*

75 USPQ2d 1051, 1054 (Fed. Cir. 2005).

The inventions are different, as noted above, and there was no teaching or suggestion in Hacker that addition of a solvent to novolac polymers would increase their adhesiveness. Only the present invention provided this teaching. Therefore, claims 19, 21, 24 and 25 are not anticipated by or obvious over Hacker.

The examiner states that Hacker anticipates claim 20 of the present case by teaching a range of novolac resin in the resist adhesive that falls within claim 20. Applicants remind the examiner that claim 20 is dependent on claim 19, and thus incorporates all of the elements of claim 19. Because Hacker does not anticipate or make obvious claim 19 (see above), Hacker does not anticipate or make obvious claims dependent on claim 19, including claim 20.

The examiner asserts that the preamble of claim 19 is essentially to be ignored because it does not add any structural limitations to the claim. Applicants point out that the elected claims 1-26 are method of use claims, and that the particular use of a composition is very important in such claims. The examiner also states that the "improved adhesive" in Hacker can be used in the same manner as the compositions of the present claims. Applicants note that while the Hacker compositions are adhesives, there is no indication in Hacker that their adhesive quality is improved. The Hacker compositions also require the presence of a surfactant, thereby making them less suitable for adhering two different substances, such as a ceramic and a manufacturing tool, together. The compositions of the present claims are superior to the compositions of Hacker for this purpose.

#### Rejection of Claims 1-9, 12-17, and 19-25 Under 35 U.S.C. §103(a)

The examiner has rejected claims 1-9, 12-17, and 19-25 as obvious over Ruiz, US Patent No. 5,406,694 ("Ruiz") in view of Hacker. The examiner states that it would have been obvious to bond the ceramic planarization manufacturing tool of Ruiz to a ceramic chunk using the adhesive of Hacker. Applicants respectfully disagree, and note several differences between this scenario and that of the present claims. Absence of the solvent in the Ruiz resist adhesive is a major difference from the present claims. It is, in fact, the product that is improved by the present invention.

It would not have been obvious to one of skill in the art at the time of the invention to combine Hacker and Ruiz. Hacker is not directed to using novolac or other resist resin

compounds to bond together two substances, i.e., a ceramic material and a manufacturing tool. It is directed to forming a film that at most adheres to one substance, e.g., a disk. There is no suggestion in Hacker that the use of a solvent with a resist adhesive resin would improve the ability of the adhesive to bond two substances together. While Ruiz does teach bonding of two substances, there is no suggestion in either Ruiz or Hacker to use a solvent of Hacker in the bonding of Ruiz.

Hacker teaches the optional use of a solvent with a resist adhesive resin. Hacker focuses on culling the wrong size of resin particles from the resin so that the use of heat in making a planarizing film and removing any solvent will not result in “smoke” or particulates that might damage the film. As noted above, the use of adhesives of the present invention is substantially different from that in Hacker. Hacker does not address the bonding ability of the compositions it describes. Therefore there is no suggestion that a solvent used in Hacker could be used in the composition of Ruiz.

The examiner states that claims 2-4 and 20 are obvious over Ruiz in light of Hacker because Hacker teaches an amount of resist adhesive that falls within these claims. As discussed above, these claims are all dependent claims, and thereby incorporate the elements of the independent claims from which they depend. Because claims 1 and 19 are not obvious over the combination of Ruiz and Hacker, claims 2-4 and 20 are not obvious over the same art.

Because claims 1-9, 12-17, and 19-25 are not obvious over Ruiz in view of Hacker, applicants request that the Examiner withdraw the rejection.

#### Rejection of Claims 10, 18, and 26 Under 35 U.S.C. §103(a)

The examiner has rejected claims 10, 18, and 26 as obvious over the combination of Ruiz and Hacker in view of Uetani et al. US Patent Application Publication 2001/0026905 (“Uetani”), relying on Uetani’s teaching of the use of acetone as the solvent. Applicants again note the difference between forming a film, as done in Hacker and Uetani, and forming a double adhesive to bond together a ceramic material and a manufacturing tool. As stated above, the resist adhesive matrices of the present claims do not use a surfactant, always require a solvent, and are used to bond a ceramic material to a manufacturing tool. Ruiz doesn’t provide the missing elements—instead it teaches a resist adhesive without a solvent. There is no suggestion in Ruiz or Hacker to combine the solvent of Hacker with the composition of Ruiz. There is nothing in

the combination of Hacker and Ruiz that teaches or suggests that adding a solvent to a resist adhesive will make a superior bonding material for joining a ceramic material to a manufacturing tool. Hacker does not teach an improved adhesiveness between two substances such as a ceramic material and a manufacturing tool. Instead, Hacker relates to the formation of a film having different qualities than the bonding material of the present invention.

Uetani does not remove this deficit. Like Hacker, Uetani deals with the formation of a film using a resist adhesive resin such as novolac. Uetani adds a radiation-sensitive quinonediazide compound and a thioxanthone--elements useful in producing a resist film, but not in producing an overall adhesive substance. There is no teaching or suggestion by Uetani, Ruiz, or Hacker that the addition of a solvent to a resist adhesive resin will improve the bonding of a ceramic to a manufacturing tool. Thus, the combination of Hacker, Ruiz, and Uetani does not make claims 10, 18 or 26 obvious. Applicants request that this rejection be withdrawn.

#### Rejection of Claim 11 Under 35 U.S.C. §103(a)

The examiner has rejected claim 11 as obvious over Ruiz and Hacker in view of Schafer U S Patent 5,421,884 ("Schafer") because Shafer teaches the use of a vacuum to remove solvent from between a ceramic chunk and a ceramic planarization manufacturing tool. Applicants respectfully disagree. As noted above, it is not apparent to one of skill in the art to combine the teachings of Ruiz and Hacker to make obvious the present invention, because their compositions are used for different purposes.

Shafer does not provide the motivation for this combination. Shafer teaches a method of coating circuit boards "which can be carried out with a minimum of solvent or even none at all ...." Column 1, lines 31-32. While Shafer teaches the use of a vacuum to remove any air and residual solvent, this does not suggest combining Hacker and Ruiz, and it does not fill the gaps in their teaching. Therefore, this set of prior art does not make claim 11 obvious. Applicants request that this rejection be withdrawn.

#### Rejection of Claim 26 Under 35 U.S.C. §103(a)

The examiner has rejected claim 26 as obvious over Hacker in view of Uetani. The examiner states that Uetani supplies the element missing in Hacker, that element being the use of acetone as a solvent. Applicants respectfully disagree that this combination makes claim 26

obvious. Claim 26 is dependent on claim 19, and therefore incorporates all elements of claim 19. As described above, Hacker does not make the present invention, including claim 19 and its dependent claims, obvious, and is missing more than the teaching to use acetone as the solvent. Hacker is directed to a different use of a resist adhesive resin than in the present invention, and does not teach or suggest any benefit to the bonding of a ceramic material to a manufacturing tool. As such, this duo of references does not make the present invention obvious, and applicants request that the examiner withdraw this rejection.

### CONCLUSION

Applicants have shown that none of the pending claims 1-26 in the present application is obvious over the art cited by the examiner. Applicants therefore believe that the application is in condition for allowance, and request that the examiner so declare. If a phone call with the undersigned would be of use to the examiner in advancing this case to issue, the examiner is welcome to reach the undersigned at her direct phone number (650) 251-7702.

Respectfully submitted,

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